

# **POWER COST EQUALIZATION**

**AN INVALUABLE TOOL FOR AN ELECTRIC UTILITY**

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# COMPONENTS OF A UTILITY'S RATES

- Customer Charge
  - Energy (non-fuel) Charge
  - Fuel Charge
  - PCE credit
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# CUSTOMER CHARGE

- Captures the fixed cost to serve the typical customer
    - Cost of meter, pole, wires and share of transformer
    - Divide by expected life – 360 months
  - Can have a different rate for different classes of customers
    - Residential
    - Commercial
    - Community Facility
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# ENERGY CHARGE

- Labor and taxes, benefits, etc.
  - Power plant operation costs (maintenance, overhauls, lube oil etc.)
  - Tank farm operations
  - Distribution system operation costs
  - Insurances (property, liability, workman's comp)
  - Interest on debt
  - Administrative costs
  - Travel
  - Profit margin (from which you set aside R&R funds)
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## FUEL CHARGE

- Actual delivered cost of fuel for previous period
  - Divided by actual kWh sales for previous period
  - If fuel is delivered more than once a year, prepare and submit a PCE revision in order to avoid constantly playing catch-up as fuel costs change
  - Revising rates regularly to reflect current fuel cost is relatively simple to do and much less controversial than revising base rates periodically
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## **PCE CAN BE AN IMPORTANT FINANCING TOOL**

- Grants are becoming more scarce
  - Generators must be overhauled regularly
  - Efficiency improvements bring long term benefits
  - We would like to invest in renewables
  - The answer in many cases is – taking out a loan
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## **A LOAN!?! – YIKES!**

- The State of Alaska offers loans – at very reasonable interest rates
  - Your bank may offer loans
  - You can develop a good credit rating
  - A more reliable financing tool for necessary major improvements
  - PCE can help pay for it
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# LET'S LOOK AT INSTALLING A WIND TURBINE

- About XYZ Utility
    - Annual sales 1,000,000 kWh
    - Fuel costs \$4.375 a gallon
    - Utility sells 12.5 kWh per gallon of fuel consumed
    - All electricity is sold for \$0.60 per kWh
      - Non-fuel rate \$0.25
      - Fuel cost \$0.35 ( $\$4.375/12.5$  kWh per gallon)
      - PCE rate is \$0.4116
    - 50% of utility's sales are eligible for PCE
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# THE WIND TURBINE

- 100 kW – similar to the 30 Northern Power turbines operated by AVEC
  - Expected life is 20 years
  - Installed cost is \$1,000,000
  - Community has a good wind regime (4+)
  - Wind turbine operates at 30% of capacity, generating 262,800 kWh annually
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## THE LOAN

- Utility borrows \$1,000,000 from AEA
  - Interest rate is established at 4% over a 20 year loan period
  - Annual payments total \$73,000
    - Principle payment \$50,300
    - Interest payment \$22,700
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## THE EFFECT OF THE LOAN ON RATES

- Utility must generate an additional \$73,000 to cover debt service
  - Non-fuel rate goes from \$0.25 to \$0.323 per kWh
  - Wind turbine generates 262,800 kWh
  - Utility uses 21,024 gallons less diesel ( $262,800/12.5$ )
  - Annual fuel cost declines from \$350,000 to \$258,020
  - Fuel charge goes from \$0.35 to \$0.258
  - Total cost per kWh =  $\$0.323 + \$0.258 = \$0.581$
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## WHAT HAPPENS TO THE PCE RATE?

- Before the wind turbine:
  - Cost per kWh      \$0.60
  - Less PCE floor    \$0.1758
  - **PCE rate**            **\$0.4242 x .95 = \$0.4030**
- After the wind turbine:
  - Cost per kWh      \$0.581
  - Less PCE floor    \$0.1758
  - **PCE rate**            **\$0.4052 x .95 = \$0.3849**

**The difference = \$0.0181. Or 500,000 kWh x \$0.0181 = \$9,050**

## **EVERYONE WINS!**

- The community is happy because 26% of their electricity is coming from wind
- AEA is happy because their loan is being repaid
- The PCE customer is happy because their bill went down a tiny bit
- The non-PCE customer is happy because their power cost went down 2 cents
- The State of Alaska is happy because XYZ's annual PCE cost went down \$9,050

**MAYBE AEA WOULD CONSIDER LOWERING THE RATE TO 3%!**

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# QUESTIONS?

